

XIII. *Descriptions of some new species of short-tongued bees belonging to the genus Nomia of Latreille.*
By J. O. WESTWOOD, M.A., F.L.S., &c.

[Read 3rd May, 1875.]

THE following descriptions of short-tongued bees, remarkable for the structure of the hind legs, were written many years ago as portions of an intended monograph of the genus *Nomia* of Latreille. The names which I had applied to several of these species in the Collection of the British Museum were introduced by Mr. F. Smith in his "Catalogue of Hymenopterous Insects, Part I., *Andrenidæ* and *Apidæ*," published by the trustees of the British Museum in 1853. Other occupations have from time to time prevented me from completing this memoir, the materials for which had accumulated on my hands to an unexpected extent; amongst these the collection of Mr. Smith himself furnished not fewer than fifteen interesting species, all of which he has, with his usual liberality, allowed me to retain to the present time. The Hopeian Collection, including my own, and the Collection of the Old East India House, furnished many additions. The publication by Mr. Smith of many curious species of bees has at length aroused these materials from their long slumber; and I have thought it better to lay them before the Entomological Society in their present condition, rather than to allow so many remarkable insects to remain longer undescribed, or to be brought before the public one by one occasionally, as has already been the case with some of the recently recorded species of *Nomia* and allied bees.

The genus is not only of very large extent, but is also very widely distributed over the earth's surface. Species from India, China and Ceylon,—from tropical and Southern Africa,—from Australia and Van Diemen's Land, and from Brazil and Mexico,—are described below, whilst the typical species of the genus inhabit the South of Europe; and various species from the islands of the Eastern Archipelago have been lately described by Mr. Smith. The following is the list of the species contained in this

memoir, as read at the meeting of the Entomological Society, without my being aware that Mr. Smith had introduced some of the species into his memoir, read on the 15th March, 1875. The descriptions, therefore, of the ten species in the following list marked with a * have been withdrawn:—

I. Species from Asia.

1.	<i>Nomia Buddha</i>	..	..	..	India.
2.	" <i>Sykesiana</i>	..	..	..	Dukhun.
3.	" <i>cilipes</i> (<i>N. combusta</i> , Smith)	..	..	..	Bombay.
4.	" * <i>Elliotii</i> 1	..	..	..	India.
5.	" <i>iridescens</i>	..	..	..	India.
6.	" <i>Silhetica</i> 2 (<i>N. aurifrons</i> , Smith)	..	..	..	Northern India.
7.	" * <i>capitata</i> 3	..	..	..	Northern India.
8.	" * <i>nasalis</i> 4 (<i>N. clypeata</i> , Smith)	..	..	..	India.
9.	" * <i>dorsalis</i> 5 (<i>N. thoracica</i> , Smith)	..	..	..	China.
10.	" <i>punctata</i>	..	..	..	China.
11.	" * <i>chalybeata</i> 6	..	..	..	China.
12.	" <i>rustica</i>	..	..	..	Ceylon.

II. Species from Africa.

13.	<i>Nomia calida</i>	..	..	..	Tropical Western Africa.
14.	" <i>crudelis</i> (<i>N. tridentata</i> , Smith)	..	..	..	Gambia.
15.	" * <i>fulvohirta</i> 7	..	..	..	Sierra Leone.
16.	" <i>patellifera</i>	..	..	..	Cape of Good Hope.
17.	" * <i>tegulata</i> 8	..	..	..	Port Natal.
18.	" * <i>cinerascens</i> 9	..	..	..	Port Natal.

III. Species from Australia.

19.	<i>Nomia hæmorrhoidalis</i> (<i>N. gracilipes</i> , Smith)	..	..	..	South Australia.
20.	" * <i>ænea</i> 10	..	..	..	Port Essington.
21.	" * <i>mærens</i> 11	..	..	..	Van Diemen's Land.

1. *Nomia Elliotii*, Westw., MS. in Mus. Brit., and in Cat. Hym. Brit. Mus., i. p. 89; Smith, supra, p. 44.

2. *Nomia Silhetica*, Westw., MS. in Mus. Brit., and in Cat. Hym. Brit. Mus., i. p. 90. = *Nomia aurifrons*, Smith, supra, p. 43.

3. *Nomia capitata*, Westw., MS. in Mus. Brit., and in Cat. Hym. Brit. Mus., i. p. 90; Smith, supra, p. 54.

4. *Nomia nasalis*, Westw., MS. in Mus. Brit., and in Cat. Hym. Brit. Mus., i. p. 89. = *N. clypeata*, Smith, supra, p. 54.

5. *Nomia dorsalis*, Westw., MS., in Mus. Brit., and in Cat. Hym. Brit. Mus., i. p. 90. = *N. thoracica*, Smith, supra, p. 45.

6. *Nomia chalybeata*, Westw., in Mus. Brit.; Smith, supra, p. 59.

7. *Nomia fulvohirta*, Westw., MS. in Mus. Brit.; Smith, supra, p. 68.

8. *Nomia tegulata*, Westw., MS. in Mus. Brit.; Smith, supra, p. 69. Varies in the colour of the stigma from fulvous buff to dark brown.

9. *Nomia cinerascens*, Westw., MS. in Mus. Brit.; Smith, supra, p. 66.

10. *Nomia ænea*, Westw., MS. in Mus. Brit.; Smith, supra, p. 63.

11. *Nomia mærens*, Westw., MS. in Mus. Brit.; Smith, supra, p. 60.

IV. *Species from America.*

22.	<i>Nomia Kirbii</i>	..	..	..	Brazil.
23.	„ <i>Cressoni</i>	..	..	..	Mexico.
24.	„ <i>cælestina</i>	..	..	..	Mexico.
25.	„ <i>tarsalis</i>	..	..	..	Brazil.
26.	<i>Monia grisca</i>	..	..	..	Mexico.

Several of the species of the genus (e. g., *N. Kirbii*, *N. Sykesiana*) are remarkable for having the antennæ terminating in a dilated knob-like joint, giving them the appearance of the antennæ of a butterfly. Another species, presenting the same peculiarity, differs from the other species in the dilated tongue, and comparatively slender and simple hind legs. These characters seem sufficient to warrant its separation as a distinct genus, to which I have applied the name of *Monia* as an anagram of that of *Nomia*. Another insect, with similar antennæ, from Java, has just been described by Mr. Ritsema in the Transactions of the Dutch Entomological Society, but having only two submarginal cells in the forewings, the ordinary 2nd and 3rd cells being thrown together; as however an irregularity in the discoidal cells of the forewings appears to exist, as shown in the two sides of the figure of the insect (plate 10, fig. 4), it is possible that the specimen represented may have been a monstrous *Nomia*, having irregularly developed veins. A fourth genus, with knobbed antennæ, is described by Mr. Smith (supra, p. 47).

I. SPECIES ASIATICÆ.

Nomia Buddha. (Pl. IV. fig. 1.)

Magna in genere, capite, occipite et parte anticâ thoracis fulvo-fusco-hirtis; facie subalbido-hirtâ, antennis nigris, apice rufescentibus, abdomine nigro obscuro, segmentis (nisi apicali) utrinque fasciâ abbreviatâ marginali albo-virescenti; femoribus et tibiis posticis brevibus crassis, his subtus lobo parvo obtuso armatis; tarsis posticis tibiis fere duplo longioribus, articulo basali elongato, basi crassiori.

Long. corp. lin. $8\frac{1}{2}$; expans. alar. antic. lin. $13\frac{1}{2}$.

Habitat in Indiâ Orientali. In Mus. Hopeiano Oxoniæ et Smith.

This large species is distinguished by its very short and thick hind femora and tibiæ, and the elongated joint of the hind tarsi, thickened at the base, and gradually becoming thinner to the tip. The general surface of the body is obscure, except the narrow posterior margins of the abdominal segments; the face is clothed with whitish

hairs, the back of the head and front of the thorax with fulvous-brown ones; the remainder of the thorax, the basal segment of the abdomen, and the posterior femora, with brown hairs. The scutellum is emarginate on its hind margin; the tegulae are fulvous-brown, with the edge paler. The abdomen is black and obscure; the basal portion of each segment is very delicately punctate and setose, and separated from the hind part by a transverse impression, leaving the apical portion in the 3rd and 4th segments broader than the basal part; this hinder part is smooth and but slightly setose, and marked on each side with a pale, greenish-white, transverse, marginal spot, which is of a triangular form in the 5th segment. The mandibles are slender, black and entire, and pointed at the tip; the maxillae are small, and the tongue elongated and densely ciliated, especially in the middle part; the paraglossae are rather more than half the length of the labial palpi, slender, and pointed. The antennae are rather short, black, with the terminal joint pitchy-red. The legs are short; the hind femora very much thickened and curved, entire on the under edge; the tibiae are very short and triangular, with a black polished impression on the outside at the extremity; on the underside they are furnished with a small, conical, obtuse lobe; the calcaria are long, the inner one finely serrated, or rather clothed, with short, erect, stiff hairs; the posterior tarsi clothed with a thick coating of fulvous hairs on the underside; the wings are slightly stained with brown, the apical margin being darkest. The first recurrent vein of the forewings enters the 2nd submarginal cell beyond the middle, and the 2nd recurrent vein at about two-thirds of the length of the 3rd submarginal cell. The 4th and following segments of the abdomen on the underside are furnished with large, rounded, ciliated plates of a remarkable form, which want of specimens has not enabled me to examine as completely as I could have wished.

The species differs from *N. strigata*, Fabr., in the thorax being destitute of the lateral margin of white hairs, and in not having the abdominal segments marked with entire pale marginal fasciae, as well as in the colours of the feet; from *N. crassipes*, Fab., it also differs in the same respects, and in not having the hind legs spined.

Pl. IV. fig. 1, *Nomia Buddha* rather magnified; 1*a*, head seen in front; 1*b*, ditto sideways; 1*c*, labrum; 1*d*, mandible; 1*e*, maxilla detached; 1*f*, ditto in situ; 1*g*, lower

lip and tongue; *lh*, hind leg; *li*, ventral view of the abdomen of the male.

Nomia Sykesiana. (Pl. IV. fig. 2.)

Capite nigro, griseo-setoso, lineâ setarum albidarum utrinque inter oculos et antennis, his fulvis, basi et articulo apicali dilatato nigris; thorace fulvo-setoso, abdomine nigro, fasciis 5 marginalibus in medio interruptis albis; pedibus posticis castaneis, albido-setosis, femoribus dilatatis; tibiis brevibus, subtrigonis, angulo interno apicali acuminato, supra excavato, margine supero excavationis angulato, tarsis elongatis.

Long. corp. lin. 5; expans. alar. antic. lin. 9.

Habitat in Indiâ Orientali (Col. Sykes). In Mus. Indico Orientali, Lond.

This species is distinguished by having the terminal joint of the fulvous antennæ black and dilated into a flattened knob, and by the interrupted white fasciæ of the abdomen. The head is clothed with short brownish-grey hairs, with a line of whitish hairs on each side of the face between the antennæ and eyes. The antennæ are quite filiform, except the terminal dilated joint. The thorax is clothed with brown hairs, those of the anterior part being of a more fulvous hue; the scutellum is simple and convex; the tegulæ are kidney-shaped and fulvous-brown, with a slender, pale, raised edge. The abdomen is much larger than the thorax; it is very delicately and closely punctured and finely setose, each segment having a deep transverse central impression, the hind part of each segment being smoother and marked with a transverse white fascia interrupted in the middle. The wings are slightly stained with brown, having the terminal portion, beyond the cells, reddish-brown. The two recurrent veins join the second and third submarginal cells at two-thirds of the length of their under sides. The hind femora are short and strongly dilated, the under edge not dentate, but with a longitudinal impression; the hind tibiæ are short and nearly trigonate, the inner apical angle produced and acute; the upper edge between the apex and the base of the tarsi with an impressed space, the upper angle of which is produced upwards. The hind tarsi are much elongated.

Pl. IV. fig. 2, *Nomia Sykesiana* magnified; 2*a*, antenna; 2*b*, hind tibia and basal joint of the tarsus seen more laterally than in the figure of the insect.

Nomia aurifrons.

Nomia aurifrons, Smith, Trans. Ent. Soc. Lond. (1875), p. 43 (♀).

(*N. Silhetica*, Westw., MS. in Mus. Brit., and in Cat. Hym. Brit. Mus., i. p. 90.)

Mr. Smith having described the female only, the following description of the male is here given :—

Male less elongated than either *N. Elliotii* or *iridescens*. Head black, glossy, strongly punctate behind the antennæ; face densely clothed with pubescent, decumbent hairs. Mandibles and antennæ pitchy, the latter redder in the middle. Thorax black above, opaque, thickly and closely punctate, and clothed with very short, brown, erect hairs; sides before the wings with a patch of luteo-fulvous hairs, with which also the post-scutellum (destitute of spines) is thickly clothed. Abdomen elongate-ovate above, opaque, and entirely covered with very fine close punctures, the first and following segments having a broad apical margin of short decumbent fulvous hairs, which increase in width in the apical segments; the first segment also with the basal part clothed with very short luteous hairs. Abdomen beneath flat; the 2nd, 3rd and 4th segments with an apical band of fine greyish hairs; the 5th somewhat raised on each side into a low tubercle; the 6th very small and divided down the middle. Legs fulvous; the femora pitchy-black, except at the tips; femora and tibiæ of the hind legs not thicker, but less hairy, than those of the female. Wings slightly stained, with the tips rather darker; veins and stigma pale fulvous; first recurrent vein inserted between the middle and hinder angle of the 2nd submarginal cell.

Female with the face slightly clothed with greyish-buff hairs. Abdomen considerably broader than in the male.

Nomia combusta. (Pl. IV. fig. 3.)

Nomia combusta, Smith, Trans. Ent. Soc. Lond. (1875), p. 56, pl. ii. fig. 9 (posterior leg).

(*N. cilipes*, Westw., MS. in Mus. Ind. Orient. Lond., and in the MS. of this Memoir.)

Facie, occipite, et thoracis dorso setis fulvis brevissimis obsitis; scutello inermi, abdomine nigro, dorso fulvo-setoso, cingulis quinque apiceque fulvis, antennis pedibusque fulvo-flavescentibus, tarsis anticis parum dilatatis et externe

longe ciliatis; femoribus posticis clavatis, tibiis brevibus curvatis, sinu dilatatis, apice intus acuminato dilatato.

Long. corp. lin. $4\frac{1}{2}$; expans. alar. antic. lin. $7\frac{1}{4}$.

Habitat in Indiâ Orientali, Dukhun, Bombay. In Mus. Ind. Orientali Lond. et Smith.

Pl. IV. fig. 3, *Nomia combusta* magnified; 3a, hind leg.

Nomia iridescens.

Gracilis, nigra, tenuissime punctatissima, griseo parum setosa; post-scutello inermi, abdominis segmentis 2—5 postice anguste viridi-iridescenti annulatis, pedibus posticis maris vix incrassatis. (Mas et fem.)

Long. corp. lin. 5; expans. alar. antic. lin. 8.

Habitat in Indiâ Orientali. In Mus. Britann.

A slender species. Upper surface black, and throughout very closely but delicately punctured, and but slightly clothed with griseous hairs; face with a fine central carina. Antennæ and mandibles black; the latter pitchy at the tips. Thorax black; the punctures rather larger than those of the head. Scutellum and post-scutellum simple. Tegulæ dirty buff, black at the base. Abdomen of the male narrow, convex, black, with the transverse impressions slight, and with fine black hairs, the space between the hinder one of each segment and the hind margin polished; the second and three following segments with a slender edge of iridescent green. Abdomen beneath flattened, pitchy, the scales of the fourth segment produced and angulated in the middle, extending nearly to the anus, divided longitudinally down the middle. Legs black; tarsi pitchy. Hind femora of the male but slightly incrassated, slightly curved; tibiæ also but slightly incrassated and curved, the outer apical angle rounded off, the inner one not produced. Wings slightly stained, the tips scarcely darker than the base; veins dark brown, the first recurrent vein inserted about the middle of the second submarginal cell.

Female shorter and more robust; legs black, tibiæ and tarsi clothed with pitchy hairs; abdomen with the band on the fifth segment obliterated.

Nomia punctata.

Nigra, subnitida, rude punctata, facie et marginibus thoracis griseo-setosis, post-scutello spinis duabus armato, abdominis segmentis paullo constrictis, segmentis 2—5

margine postico tenui viridi; pedibus nigris, femoribus posticis maris incrassatis curvatis, tibiis curvatis, compressis, apice interno intus producto, et oblique truncate; alis limpidis. (Mas et fem.)

Long. corp. lin. 5; expans. alar. lin. 8.

Habitat in Chinâ. In Mus. Britann.

Black, strongly punctured on the upper side; face and sides of the thorax sparingly clothed with fine grey hairs. Antennæ black, terminal joint pitchy. Thorax above black, strongly punctured, the entire margins sparingly clothed with grey hairs; mesonotum with a fine, central, simple impressed line down the centre and a shorter one on each side of it in front, and an abbreviated one on each side, close to the tegulæ; scutellum on each side produced into a small angulated tubercle; post-scutellum armed with two reflexed spines; abdomen black, shining, dorsal segments with a deep transverse impression, the basal portion of each strongly punctured, the hinder portion smooth and polished, finely setose; the 2nd and three following segments marked with a slender, green-blue, transverse fascia; tegulæ black, glossy, with a slender whitish margin; legs black; tarsi pitchy, sparingly clothed with greyish-buff setæ; the basal joint of the tarsi more thickly setose; hind femur of the male incrassated, very gibbose on the upper side in the middle, slightly concave beneath; hind tibiæ elongate, triangular, roundly curved along the outer edge, the inner one straighter, the inner angle pitchy-red and considerably produced, and obliquely truncate close behind the tibial spurs. Fourth ventral plate of the male nearly flat, with a slight impressed line down the middle, terminal segments deeply impressed, the edges with a thick row of incurved hairs. Wings nearly colourless, with the first recurrent vein running into the middle of the 2nd submarginal cell.

Nomia rustica.

Nigra, subtilissime punctata, abdomine lævi (segmenti 2di basi tantum punctato), griseo parum setosa, post-scutello inermi, abdominis segmentis 2do—5to margine postico tenui albo, pedibus posticis subsimplicibus. (Mas.)

Long. corp. lin. 3; expans. alar. lin. $5\frac{1}{2}$.

Habitat Ceylon. From the Collection of Mr. Cuming. In Mus. Britann.

Face not carinated, finely punctured, slightly clothed with short grey hairs at the side. Antennæ rather short,

brown, basal joint black. Thorax black, very delicately and closely punctured, very slightly clothed with short grey hairs; post-scutellum unarmed; abdomen ovate, subconvex, black, nearly smooth, slightly setose; 2nd segment with the basal portion preceding the first transverse impression rather coarsely but widely punctured, hinder edge of this and three following segments white; beneath flat, glossy, very finely punctured, 4th segment with the hind margin straight; 5th very small, forming two rounded, flattened lobes in the middle. Legs black, hind femora simple, slightly thickened in the middle, on the under-side, which is convex; hind tibia of ordinary length, elongate, subtriangular, the inner apical angle produced into a short conical point, hind tibiæ very slender. Wings stained yellowish-brown. Stigma brown, veins black, the 1st recurrent vein in a line with the outer edge of the 2nd submarginal cell.

II. SPECIES AFRICANÆ.

Nomia calida. (Pl. IV. fig. 4.)

N. nigra, opaca, fusco breviter pubescens, facie aureo-sericanti; antennis brunneis, subtus fulvis; tegulis fulvis; abdomine aureo-flavescenti, 5-annulato, apiceque concolori; pedibus fulvo-flavis, femoribus posticis inflatis, basi fuscis, dente parvo ultra medium marginis externi et inferi armatis, tibiis trigonis, angulo interno apicali acuminato; alis parum fuscis, fulvo-tinctis, venis fulvescentibus.

Long. corp. lin. 5; expans. alar. antic. lin. 8.

Habitat in Africâ tropicali. In Mus. Hopeiano Oxoniæ (olim nostr.).

The bright, golden-yellow fasciæ of the abdomen at once distinguish this species, which is of moderate size, and clothed with very short pubescence, being destitute of gloss; this pubescence on the face is very thick, and of a pale-golden colour; on the top of the head and thorax it is browner. The abdomen has the hind margin of each segment of a fulvous-yellow colour, as is also the apex. The antennæ are of moderate length, with the second joint distinct; the mandibles are entire (fig. 4*b*); the tongue is considerably elongated (fig. 4*c*); the legs are fulvous-yellow, the hind femora moderately swollen and pubescent, with the basal half dark brown, having a small tooth on the outer under edge beyond the middle; the hind tibiæ are yellow, with a small dusky patch on the outside,

near the base; they are subtrigonal, rather curved, the inner apical angle being produced to a point; the tarsi are elongated, the basal joint moderately dilated, with the sides parallel, and about as long as the remainder of the tarsal joints united. The wings are brownish, with the veins fulvous; the stigma brown.

Pl. IV. fig. 4, *A. calida* magnified; 4a, antenna; 4b, mandible; 4c, tongue and labial palpi; 4d, terminal segments of the abdomen beneath; 4e, hind leg.

Nomia tridentata. (Pl. IV. fig. 5.)

Nomia tridentata, Smith, Trans. Ent. Soc. Lond. (1875), p. 64, pl. ii. fig. 10 (posterior leg).
(= *Nomia crudelis*, Westw., MS., ante, p. 208.)

Nigra, capite et thorace pubescentiâ densâ lutescenti indutis, facie subalbidâ, antennis castaneis, abdomine nigro, luteo-setoso, marginibus segmentorum luridis aut luteo-griseis, setis magis fulvis; femoribus posticis valde incrassatis, fere globosis, subtus dentibus tribus acutis armatis; tibiis elongato-trigonis, angulo interno apicali longe elongato, apice acuto.

Long. corp. lin. $4\frac{1}{2}$; expans. alar. antic. lin. $7\frac{1}{2}$.

Habitat Gambia, Afric. tropic. In Mus. Britann., Hopeiano Oxoniæ et Smith.

Pl. IV. fig. 5, *Nomia tridentata* magnified; 5a, the hind leg.

Nomia patellifera. (Pl. IV. fig. 6.)

Nigra, opaca, cinereo-setosa, facie lutescenti setosâ, abdominis segmentis tenue albido-marginatis; femoribus tibiisque castaneis basi et apice pallidioribus, tarsis anticis in patellam magnam planam albam dilatatis, femoribus posticis clavatis, subtus dente parvo unico armatis; tibiis medio-criter dilatatis, angulo interno apicali elongato acuminato. (Mas.)

Long. corp. lin. 5; expans. alar. antic. lin. 9.

Habitat apud Promont. Bonæ Spei. In Mus. Smith.

The curiously dilated anterior tarsi of the male are quite characteristic of this species, which is rather slender and delicately punctured; the face is thickly clothed with dull-luteous hairs; the antennæ are slender and black, pitchy beneath; the thorax is ovate, obscure black, with the sutures tinged with brown; the scutellum simple; the tegulæ are dark brown; the metathorax clothed with grey hairs; the abdomen is elongate-obovate, finely punctured,

black, with the transverse impressed line of each segment quite close to its posterior margin, which is narrowly white and slightly constricted, the constricted part being much more delicately punctured; the four anterior legs are fulvous beneath, with a brown shade above along the middle; the fore tarsi are white, with the ungues and pulvillus conspicuously black; the hind femora are pitchy, more fulvous at the base and beneath; the tibiae pale whitish, dusky in the middle; the basal joint of the four posterior tarsi is whitish, the remainder of the joints pitchy, with whitish hairs; the wings are slightly stained, the extremity darker brown and the stigma black; the first recurrent vein of the forewings arises near the extremity of the second discoidal cell, and the second recurrent vein a little beyond the middle of the third discoidal cell: the abdomen beneath is pitchy, with broad grey margins to the segments.

Pl. IV. fig. 6, *Nomia patellifera* magnified; 6a, anterior tarsus; 6b, terminal joint of ditto; 6c, hind leg; 6d, extremity of the underside of the abdomen.

III. SPECIES AUSTRALASIATICÆ.

Nomia gracilipes. (Pl. V. fig. 1.)

Nomia gracilipes, Smith, Trans. Ent. Soc. Lond. (1875), p. 61.

(*Nomia hæmorrhoidalis*, Westw., MS., ante, p. 208.)

Elongata, gracilis, nigra, capite et thorace fusco-villosis, facie inferâ albo-villosâ, thorace fasciulis parvis setarum albarum ornato, abdomine nigro apice fulvo, marginibus segmentorum cyaneis; segmentis tribus basalibus utrinque fasciâ abbreviatâ setarum albarum; pedibus posticis elongatis, paullo incrassatis. (Mas.)

Long. corp. lin. 5; expans. alar. antic. lin. 9.

Habitat in Australasiæ partibus australibus. In Mus. Smith.

IV. SPECIES AMERICANÆ.

Nomia Kirbii. (Pl. V. fig. 2.)

Nomia Kirbii, Westw., MS. in Mus. Brit.; Smith, Trans. Ent. Soc. Lond. 3rd Ser. Vol. 2, p. 398, pl. xxi. fig. 5 (antenna), and Vol. 1875, p. 69, pl. ii. fig. 19, 20 ♂ (antenna and posterior leg).

Nigra, crebre punctatissima, piceo-pubescens, antennis articulo apicali, capitulo rotundato compresso, femoribus intermediis crassis, dente obtuse subbasali infero;

tarsis intermediis articulo basali in medio supra angulato-dilatato, femoribus posticis mediocribus, tibiis crassis subtrigonis, apice infero producto. (Mas.)

Long. corp. lin. $8\frac{1}{2}$; expans. alar. antic. lin. 16.

Habitat in Brasiliâ (Kirby, MS.). In Mus. Britan. (olim Kirby).

To this species, which was unique in the collection of the Rev. W. Kirby, was attached a note, "Gen. N. inter Andrenam et Panurgum, ♂ sed pollinifer [!] ex tibiis posticis. Mus. Norvic. Brasilia." At the sale of the Entomological Society's collection the specimen passed to the British Museum, where it still remains unique.

Entirely black, clothed with short sooty-black hairs; the face on each side more thickly clothed with hair, the back of the head finely punctate and nearly naked; the antennæ are rather shorter than the thorax, the basal joint strongly setigerous, the second joint distinct, the last joint dilated and flattened into a rounded capitulum; the thorax is nearly round, with large tegulæ finely setose; the mesonotum opaque and closely punctured; the metathorax glossy, with a central deep longitudinal impression and a transverse basal impression deeply and closely punctured; the wings are stained with brown and glossy; the abdomen is elongate-obovate, finely and closely punctured, each segment with a transverse impression beyond the middle: the middle femora are thickened and compressed, with an obtuse dentate lobe near the base beneath; the posterior femora are thickened but unarmed; the posterior tibiæ much dilated, forming a trigonate mass, with the inferior inner angle produced into an obtuse tooth; the basal joint of the posterior tarsi is much elongated and setose, especially on its under edge; the first recurrent vein of the forewings is received at about two-thirds of the length of the second submarginal cell.

Pl. V. fig. 2, *Nomia Kirbii* magnified; 2*a*, maxilla and its palpus equal-jointed; 2*b*, labium and tongue; 2*c*, antenna; 2*d*, hind foot; 2*e*, terminal segments of male abdomen.

Nomia Cressoni. (Pl. V. fig. 3.)

N. nigra, punctata, subnitida, fuscescenti-villosa; antennis longis, apice gracillimis, tegulis piceis glabris; abdomine oblongo, segmentis 2—5 margine postico glabris, opalinovirescentibus; femoribus posticis brevibus, valde incrassatis, subglobosis; tibiis brevissimis, subconicis, crassis, angulo

interno apicali late producto et albido, tarsis posticis articulo basali maximo, compresso, fulvescenti.

Long. corp. ♂ lin. $8\frac{1}{2}$; expans. alar. antic. lin. 15.

Habitat in Mexico (D. Coffin, Hym. No. 96). In Mus. Hopeiano Oxoniæ (olim nostr.).

This is one of the finest and largest species of the genus, remarkable for the length of the male antennæ, which are gradually attenuated beyond the middle, and terminated in an acute point; they are black at the base and on the upper side, but fulvous-brown beneath and at the tip, the second joint is scarcely visible, the face is clothed with greyish-luteous hairs. The mandibles are elongate-conic, pointed at the tip, with a strong conical tooth in the middle of the upper edge; the labrum is short, rounded in front, and ciliated; the maxillary palpi are scarcely larger than the labial. The thorax is short and nearly rounded; the pubescence of the front part being more luteous than that of the posterior portion; the scutellum is short and entire, but with a longitudinal central impression; the abdomen is elongate-ovate, punctured, and moderately clothed with blackish hairs; each segment has a strong transverse impression beyond its middle, the hinder portion of each being smooth and of a beautiful opaline-green colour in the 2nd, 3rd, 4th and 5th segments, the pale-coloured margin in the last segment being attenuated on each side; the hind femora are short, and very much incrassated, especially on the upper side, but destitute of spines on the under side; the tibiæ are very short and thick, the inner angle being produced into a thick, obtuse lobe, concave within (the two calcaria arising within the excavation), and of a dirty-white or buff colour, which is also the colour of the basal joint of the posterior tarsi, which is much elongated and broadly compressed, widest at its base, the inner edge being slightly concave, so as to give the idea of its being a polliniferous corbicula. The 2nd and 3rd ventral segments are divided by a straight, central, longitudinal impression into two flattened opaque lobes in the middle of each joint, the sides being strongly setose; the first recurrent vein arises at about two-thirds of the length of the 2nd submarginal cell, and the second recurrent vein at about three-fourths of the length of the 3rd submarginal cell. The female has simple black antennæ, simple legs, the hind ones not corbiculated, and only three green fasciæ on the abdomen.

Pl. V. fig. 3, *Nomia Cressoni*, male, slightly enlarged;

3*a*, the face and antenna; 3*b*, labrum; 3*c* and 3*d*, mandibles; 3*e*, maxilla; 3*f*, labium and tongue; 3*g*, 3*h* and 3*i*, the hind leg and its tibia in different points of view.

Closely allied to *Nomia Nortoni* of Cresson (Trans. Amer. Ent. Soc. Vol. I. No. 4, p. 385), but the male of that insect is described as having three long acute spines on the inner edge of the excavation of the posterior tibiæ, which is not the case with my species, of which I have received several examples of both sexes.

Nomia cælestina. (Pl. V. fig. 4.)

Læte purpureo-cærulea, crebre punctatissima, capite et thorace fulvo-hirtis, metathorace et abdominis basi griseo-hirtis; antennis nigris, subtus piccis, pedibus flavis, femoribus basi æneis, posticis supra viridi-nitidis, incrassatis; tibiis crassis, tarsis posticis articulo basali crasso compresso, subtus biemarginato. (Mas.)

Long. corp. lin. 6; expans. alar. antic. lin. 10.

Habitat in Mexico (D. Coffin, Hym. No. 94). In Mus. Hopeiano Oxoniæ (olim nostr.).

This very elegant species is of a rich purple-blue colour, very finely and closely punctured, the head and thorax thickly clothed with fulvous hairs, except the hind portion of the latter, in which the hairs are of a greyer colour, as they are also on the base of the abdomen and upper side of the hind femora; the anterior margin of the upper lip and the mandibles are clear yellow; the antennæ are black above, but pitchy-red beneath; they are short, with the 2nd joint distinct; the tegulæ are of moderate size, the abdomen ovate, each segment above having a transverse raised ridge of a black colour beyond the middle, the posterior margin of each segment being glabrous; the legs are short and yellow-coloured, and the femora and tibiæ in all the legs marked above and at the sides with dark æneous or purple; the posterior femora are much swollen and slightly angulated near the base of the under edge; the hind tibiæ are regularly clavate, with the calcaria scarcely visible; the hind tarsi have the basal joint broad and compressed, with a long shallow emargination along the middle of its under edge, and with a much deeper and smaller one at the extremity of the same edge; the first recurrent vein in the forewings is received at about two-thirds of the length of the 2nd submarginal cell, and the second recurrent vein at about three-fourths of the 3rd submarginal cell. The underside of the terminal ven-

tral segments have the hairs arranged to form a semicircle in each.

Pl. V. fig. 4, *N. cælestina* magnified; 4a, hind foot; 4b, terminal segments of the abdomen.

Nomia tarsalis. (Pl. V. fig. 5.)

Parva, nigra, subopaca, crebre punctatissima, griseo-setosa, labro et mandibulis extus albidis, tegulis tarsisque brunneis, pedibus posticis incrassatis, tarsorum articulo basali in medio spinâ acutâ armato, segmentis abdominalibus apice tenue albedo-setosis.

Long. corp. lin. $3\frac{1}{2}$; expans. alar. antic. lin. $6\frac{1}{2}$.

Habitat in Brasiliâ (Hon. D. Ellis). In Mus. Hopeiano Oxoniæ (olim Curtis, Saunders et nostr.).

This little bee is at once distinguished by the structure of the basal joint of the posterior tarsi; it is black, finely punctured, and moderately clothed with grey pubescence; the small square upper lip, and outside of the mandibles, dirty white; the antennæ are black; the abdomen is ovate, being gradually pointed to the tip, convex, and with the transverse impression near the extremity of each dorsal segment scarcely defined, the apical margin being glossy and sparingly clothed with a row of short grey hairs. The legs are black, with the tibiæ and tarsi pitchy: the hind femora more chestnut on the inside; these are swollen above, and with a broad dilatation near the base on the underside; the posterior tibiæ are clavate, slightly excavated and setose on the inner edge between the middle and extremity; the basal joint of the hind tarsi is two-thirds of the length of the tibia, compressed, with a deep emargination on its underside between the middle and apex; its upper angle produced into a sharp tooth.

Pl. V. fig. 5, *Nomia tarsalis* magnified; 5a, the hind leg.

→ MONIA, nov. gen.

Mandibulæ parvæ graciles, dente interno instructæ.

Maxillæ elongatæ, palpo 6-articulato.

Mentum gracile, subcylindricum, linguâ apice lato bifido, membranaceo-setoso, utrinque lobo laterali instructâ. Palpi labiales minuti, 4-articulati. Antennæ articulo 1mo parvo, apicali in mare dilatato compresso. Pedes postici satis graciles, tibiâ intus dense setosâ; tarsi graciles. Cellulæ submarginales 2da et 3tia in alis anticis fere æquales.

Monia grisea. (Pl. V. fig. 6.)

Tota nigra, subnitida, griseo-setosa, punctata, antennis subtus luteis, abdomine segmentis dorsalibus pone medium impressione transversâ notatis, parte pone impressionem in singulo, fasciâ e setis griseis fornatâ, notatâ.

Long. corp. lin. 4; expans. alar. lin. 7½.

Habitat Mexico, prope Piedad Road (D. Coffin, Hym. No. 250). In Mus. Hopeiano Oxoniæ (olim nostr.).

This bee is of small size, black, glossy, punctate, and more or less sparingly clothed with grey hairs in different parts, especially on the lower part of the face and the sides and hind part of the thorax. The antennæ are slender, and nearly as long as the head and thorax; black above, but pitchy-red beneath, with the basal joint short, and the terminal one dilated into a flattened, glossy, lozenge-shaped capitulum. The tegulæ are of moderate size. The scutellum is entire. The abdomen ovate, convex, with the ordinary transverse impression near the posterior margin of each segment. The hind legs are simple; the tibiæ elongate, with long hairs on the inner edge, and with two long calcaria; the tarsi of the hind legs are simple and finely setose. The 2nd submarginal cell is nearly as large as the 3rd, being angulated at its basal side, the 1st recurrent vein being received at about the middle of its length; the 3rd submarginal cell is much narrowed in front, with the 2nd recurrent vein arising at a little distance beyond the middle of its hind margin.

Pl. V. fig. 6, *Monia grisea* magnified; 6a, mandible; 6b, maxilla; 6c, mentum and tongue apparently destitute of paraglossæ.

Description of the Plates.

PLATE IV.

- Fig. 1. *Nomia Buddha*.
 2. " *Sykesiana*.
 3. " *combusta*.
 4. " *calida*.
 5. " *tridentata*.
 6. " *patellifera*.

PLATE V.

- Fig. 1. *Nomia gracilipes*.
 2. " *Kirbii*.
 3. " *Cressoni*.
 4. " *cælestina*.
 5. " *tarsalis*.
 6. *Monia grisea*.